

## AMENDMENTS TO THE CLAIMS

The following list of claims contains all of the claims that are, or ever have been, in the present application. This list will replace all other prior versions, and listings, of the claims:

### Listing of claims:

- 1) (canceled)
- 2) (canceled)
- 3) (canceled).
- 4) (canceled)
- 5) (canceled)
- 6) (canceled)
- 7) (canceled)
- 8) (canceled)
- 9) (canceled)
- 10) (canceled)
- 11) (canceled)
- 12) (canceled)
- 13) (canceled)
- 14) (canceled)
- 15) (canceled)
- 16) (canceled)
- 17) (canceled)
- 18) (canceled)
- 19) (canceled)
- 20) (canceled)
- 21) (canceled)

- 22) (currently amended) An implantable device comprising a structure comprising polymer fibers that are at least partially aligned, wherein said alignment of said fibers expresses itself as an architecture comprising a plurality of plates, each of said plates comprising aligned polymer fibers, said plates defining at least one space therebetween comprising fluid planes, said fluid planes existing as multiple fissures located randomly within the structure, further wherein said architecture is present throughout said structure, and further wherein said implantable device is arranged to be surgically implanted into a body of a living being, said device produced by a process comprising:
- a) providing a mixture, said mixture comprising a plurality of fibers, a lubricant, and a suspension fluid, said suspension fluid filling a void space between said fibers;
  - b) subjecting said mixture to at least one compressive force, said compressive force causing the migration and at least partial alignment of said fibers as said suspension fluid moves outward from a direction of said compression, wherein said mixture is not constrained lateral to the compression direction; and
  - c) removing substantially all of said suspension fluid from said mixture.
- 23) (original) The implantable device of claim 22 further comprising at least one reinforcing element.
- 24) (original) The implantable device of claim 23, wherein said at least one reinforcing element is selected from the group consisting of particulates, threads, fibers, whiskers, textiles, rods, meshes, and combinations thereof.
- 25) (original) The implantable device of claim 22 further comprising at least one biologically active agent.
- 26) (original) The implantable device of claim 23 further comprising at least one biologically active agent.
- 27) (canceled)
- 28) (previously presented) The implantable device of claim 22 wherein said plates of aligned fibers do not traverse the length of said device, said plates of aligned fibers being nested in a compact orientation.
- 29) (previously presented) The implantable device of claim 22 wherein said device has an

- 43) (original) The matrix of claim 42 wherein said plates are oriented.
- 44) (original) The matrix of claim 42 wherein said plates are aligned.
- 45) (original) The matrix of claim 42 wherein said plates are randomly oriented.
- 46) (original) The matrix of claim 42 wherein the orientation of fibers within each plate is independent of the orientation of fibers within adjacent plates.
- 47) (original) The matrix of claim 42 wherein the fibers are composed of at least two different polymers.
- 48) (original) The matrix of claim 42 wherein the fibers are contacted with a lubricant prior to said compression.
- 49) (original) The matrix of claim 42 wherein the fibers are contacted with a plasticizer.
- 50) (original) The matrix of claim 42 wherein the fibers are contacted with a surfactant.
- 51) (canceled)
- 52) (original) The matrix of claim 42 wherein the plates form microscopic laminations.
- 53) (original) The matrix of claim 42 wherein the matrix is cross-linked.
- 54) (original) The matrix of claim 42 wherein only the outer surface of the fibrous matrix is cross-linked leaving the interior substantially un-cross-linked.
- 55) (original) The matrix of claim 42 in the form of a pocket.
- 56) (original) The matrix of claim 42 in the form of a tube.
- 57) (original) The matrix of claim 42 wherein the fibrous matrix is compressed into a sheet.
- 58) (original) The matrix of claim 42 wherein the fibrous matrix is compressed into a cylinder.
- 59) (original) The matrix of claim 42 wherein the fibrous matrix is compressed into a block.
- 60) (original) The matrix of claim 42 wherein the plates of the fibrous matrix create a gradient.
- 61) (original) The matrix of claim 42 further containing a reinforcing material.
- 62) (original) The matrix of claim 42 wherein the plates form a coating around an object.
- 63) (original) The matrix of claim 42 further containing a biologically active agent.

arranged to accept a suture and resist tearing.

38) (original) The implantable device of claim 22, wherein said implantable device serves a medical device function, said function selected from the group consisting of dura repair, hernia repair, rotator cuff repair, nerve repair, ligament repair, tendon repair, meniscal repair, muscle repair, sling, joint repair, spinal repair, craniofacial repair, and maxiofacial repair.

39) (currently amended) An implantable device comprising multiple layers of polymer fibers produced by a process comprising:

(a) providing a mixture of polymer fibers and at least one liquid, said mixture defining void spaces between said polymer fibers and liquid; and

(b) compressing said mixture along at least one axis, thereby reducing an amount of said void space and facilitating migration and alignment of said polymer fibers to form fibrous plates as said fluid is expelled lateral to said axis of compressing, and further wherein said compressing is exclusive of any rotation of any piston or mold, wherein upon compression said fibrous plates create a layered structure, wherein said layering occurs at a microscopic as well as at a macroscopic level.

40) (original) The implantable device of claim 39, wherein the multiple layers of polymer fibers are composed of different polymers.

41) (original) The implantable device of claim 39, wherein the multiple layers of polymer fibers form a gradient.

42) (currently amended) A compressed fibrous matrix wherein said matrix comprises multiple plates of oriented fibers, said multiple plates being present throughout said matrix and existing both at a microscopic as well as a macroscopic level, and further said plates being locked in a compact anisotropic structure, with said plates being formed by applying a unidirectional compressive force to a fibrous dough comprising said fibers and a suspending fluid, said fibers being distributed in said suspending fluid, wherein said fibrous dough is not constrained lateral to the compression direction but instead is free to move laterally, the compressive force causing said fibers to align as fluid flows away from said direction of said compressive force.

anisotropic structure.

- 30) (previously presented) The implantable device of claim 22 wherein said device has an isotropic structure in two dimensions.
- 31) (currently amended) An implantable device comprising polymer fibers originally having void spaces therebetween, wherein said fibers have been compressed in at least one direction while in contact with a fluid comprising a lubricant, wherein said mixture is free to move lateral to said compression direction, said lubricant serving to reduce said void space by enabling migration of said polymer fibers through said fluid as said fluid is expelled in a direction radial to said direction of compression, and said lubricant furthermore enabling alignment of said polymer fibers, said alignment being expressed as an architecture comprising a plurality of plates comprising aligned fibers, and wherein said plates define at least one space therebetween comprising fluid planes, said fluid planes existing as multiple fissures located randomly within said architecture, and further wherein said polymer fibers on a periphery of said implantable device are at least partially cross-linked, and further wherein polymer fibers located away from said periphery are not cross-linked, and further wherein said implantable device is suitable for implantation into a body of a living being.
- 32) (previously presented) The implantable device of claim 31 further comprising at least one pocket located inside the cross-linked fiber periphery.
- 33) (previously presented) The implantable device of claim 32 further comprising at least one substance provided to said at least one pocket, wherein said at least one substance is selected from the group consisting of ceramics, polymers, cells, biologically active agents, liquids and combinations thereof.
- 34) (canceled)
- 35) (canceled)
- 36) (previously presented) The implantable device of claim 22, wherein the device is arranged to swell upon implantation and exposure to a bodily fluid, thereby functioning as a hemostatic tract plug.
- 37) (original) The implantable device of claim 22, wherein said implantable device is

- 64) (original) The matrix of claim 42 further containing a microstructure.
- 65) (original) The matrix of claim 42 further containing a particulate.
- 66) (withdrawn and currently amended) A prosthesis suitable for implantation in a living being, comprising a compact, anisotropic structure comprising a plurality of plate-like structures locked to one another, the plate-like structures comprising aligned, biodegradable fibers and defining at least one space therebetween comprising fluid planes, the fluid planes existing as multiple fissures located randomly within the structure, said prosthesis being arranged for implantation in the body of a living being, and being produced by a process comprising a) providing a mixture, said mixture comprising a plurality of said biodegradable fibers, a lubricant, and a suspension fluid, said suspension fluid filling a void space between said fibers;  
b) subjecting said mixture to at least one compressive force not involving any rotational component of any piston or mold, said compressive force causing the migration and at least partial alignment of said fibers as said suspension fluid moves away from a direction of said compression; and  
c) removing substantially all of said suspension fluid from said mixture .
- 67) (withdrawn) The prosthesis of claim 66, wherein said structure is isotropic in two dimensions.
- 68) (withdrawn) The prosthesis of claim 66, wherein said layers or plate-like members extend substantially completely through said structure.
- 69) (withdrawn) The prosthesis of claim 66, wherein said layers or plate-like members do not extend completely through said structure, but rather exist as multiple fissures located randomly throughout said structure.
- 70) (withdrawn) The prosthesis of claim 66, wherein said structure further comprises at least one lubricant.
- 71) (withdrawn) The prosthesis of claim 66, wherein said structure further comprises an inter fiber void space defined by a space between said fibers.
- 72) (withdrawn) The prosthesis of claim 66, wherein said structure further comprises at least one additive.

- 73) (withdrawn) The prosthesis of claim 72, wherein said additive comprises at least one substance selected from the group consisting of a surfactant, a plasticizer, particulate, a porosifier and a mesh.
- 74) (previously presented) The implantable device of claim 24, further comprising at least one lubricant distributed among said aligned fibers.
- 75) (previously presented) The implantable device of claim 24, existing as claimed at a time x, and further wherein at a time y that is earlier than time x, said implantable device further comprised at least one lubricant in contact with said fibers, and void space, and in between said time y and said time x, said implantable device was subjected to compression, whereby said lubricant served to reduce said void space by facilitating migration and alignment of said polymer fibers.
- 76) (previously presented) The implantable device of claim 31, wherein said alignment of said polymer fibers comprises alignment into a layered structure, the layering occurring at both a microscopic level as well as a macroscopic level.
- 77) (previously presented) The implantable device of claim 22, wherein said plates are aligned.
- 78) (previously presented) The implantable device of claim 22, wherein said plates are randomly oriented.
- 79) (previously presented) The implantable device of claim 22, wherein the orientation of fibers within each plate is independent of the orientation of fibers within adjacent plates.
- 80) (previously presented) The implantable device of claim 31, wherein said alignment of said fibers takes the form of a plurality of plates, the fibers within a given plate being oriented.
- 81) (previously presented) The implantable device of claim 80, wherein said plates are aligned.
- 82) (previously presented) The implantable device of claim 80, wherein said plates are randomly oriented.
- 83) (previously presented) The implantable device of claim 80, wherein the orientation of

fibers within each plate is independent of the orientation of fibers within adjacent plates.

84) (previously presented) The implantable device of claim 31, wherein the fibers are composed of at least two different polymers.

85) (previously presented) The implantable device of claim 31, wherein the fibers are contacted with a plasticizer.

86) (previously presented) The implantable device of claim 31, wherein the fibers are contacted with a surfactant.

87) (previously presented) The implantable device of claim 31, wherein the plates form microscopic laminations.

88) (canceled)

89) (canceled)

90) (withdrawn) An implantable device comprising a structure comprising polymer fibers that are at least partially aligned, wherein said alignment of said fibers expresses itself as an architecture comprising a plurality of plates, each of said plates comprising aligned polymer fibers, said plates defining at least one space therebetween comprising fluid planes, said fluid planes existing as multiple fissures located randomly within the structure, and further wherein said implantable device is arranged to be surgically implanted into a body of a living being.

91 (withdrawn) A method of fabricating a fibrous member comprising the steps of:

- a) providing a mixture, said mixture comprising a plurality of fibers, a lubricant, and a suspension fluid, said suspension fluid filling a void space between said fibers;
- b) subjecting said mixture to at least one compressive force, said compressive force causing the migration and at least partial alignment of said fibers as said suspension fluid moves lateral to a direction of said compression; and
- c) removing substantially all of said suspension fluid from said mixture.

92 (withdrawn) The method of claim 91, further comprising, and prior to said step of removing substantially all of said suspension fluid,



- d) cross-linking at least a portion of said mixture; and
- e) subjecting said at least partially cross-linked mixture to a second compressive force.

93 (new) The implantable device of claim 39, wherein said mixture is not constrained lateral to the compression direction.

94 (new) The compressed fibrous matrix of claim 42, wherein said compression does not involve a rotation of any mold or piston.